3. The method of claim 1, wherein the hydrogen is provided to the processing chamber in a mixture of about 95% by volume of helium and about 5% by volume of hydrogen.

4. The method of claim 1, further comprising increasing the helium content to increase etching of the patterned substrate surface.

5. The method of claim 1, wherein the substrate surface comprises silicon oxide or silicon nitride.

6. The method of claim 1, wherein the plasma is capacitively and inductively powered.

7. The method of claim 1, wherein the gas mixture is introduced into the processing chamber to establish a pressure from about 1 mTorr to about 200 mTorr.

8. A method for processing a substrate in a processing chamber, comprising:

(a) exposing a patterned substrate surface to a plasma generated from a gas mixture consisting of argon, helium and hydrogen; and

(b) increasing the helium content of the plasma to increase etching of the patterned substrate surface, wherein the gas mixture comprises less than about 75% by volume of argon.

10. The method of claim 8, wherein the hydrogen is provided to the processing chamber in a mixture of about 95% by volume of helium and about 5% by volume of hydrogen.

11. The method of claim 8, wherein the substrate surface comprises silicon oxide or silicon nitride.

12. The method of claim 8, wherein the plasma is capacitively and inductively powered.

13. The method of claim 13, wherein the gas mixture is introduced into the processing chamber to establish a pressure from about 1 mTorr to about 200 mTorr.

14. A method for processing a substrate, comprising:

(a) exposing a patterned substrate surface to a plasma generated from a gas mixture comprising argon, helium and hydrogen in a processing chamber, wherein the plasma is capacitively and inductively powered; and

(b) increasing the helium content to increase etching of the patterned substrate surface, wherein the gas mixture comprises less than about 75% by volume of argon.

15. The method of claim 14, wherein the hydrogen is provided to the processing chamber in a mixture of about 95% by volume of helium and about 5% by volume of hydrogen.

16. The method of claim 15, wherein the substrate surface comprises silicon oxide or silicon nitride.

17. The method of claim 14, wherein the gas mixture is introduced into the processing chamber to establish a pressure from about 1 mTorr to about 200 mTorr.

18. The method of claim 1, wherein the gas mixture comprises between about 25% and about 75% by volume of argon.

19. The method of claim 8, wherein the gas mixture comprises between about 25% and about 75% by volume of argon.

20. The method of claim 14, wherein the gas mixture comprises between about 25% and about 75% by volume of argon.

21. The method of claim 1, wherein the plasma is generated by delivering a power level of between about 10 watts and about 500 watts to the processing chamber.

22. The method of claim 8, wherein the plasma is generated by delivering a power level of between about 10 watts and about 500 watts to the processing chamber.

23. The method of claim 14, wherein the plasma is generated by delivering a power level of between about 10 watts and about 500 watts to the processing chamber.

24. A method for processing a substrate in a processing chamber, comprising exposing a patterned substrate surface to a plasma generated from a gas mixture consisting of less than 75% by volume of argon and a mixture of about 95% by volume of helium and about 5% by volume of hydrogen.

25. The method of claim 24, wherein the plasma is capacitively and inductively powered.

26. The method of claim 24, further comprising increasing the helium content to increase etching of the patterned substrate surface.

27. The method of claim 24, wherein the substrate surface comprises silicon oxide or silicon nitride.

28. The method of claim 24, wherein the gas mixture is introduced into the processing chamber to establish a pressure from about 1 mTorr to about 200 mTorr.

29. The method of claim 24, wherein the gas mixture comprises between about 25% and about 75% by volume of argon.